



## Non-Pharmacological Methods of Pain Relief in Labor in the Opinion of Puerperae – A Preliminary Report

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### Abstract

**Introduction:** Labor pain is a physiological phenomenon that accompanies every woman during childbirth. From a biological point of view, it is intended to mobilize woman to cooperate with her own body during labor. However, several external factors cause anxiety and a desire to finish delivery with a cesarean section. There are many non-pharmacological methods, which may be effective for the birth pain reduction with no side effects.

**Aim of the Study:** The aim of the study was to investigate what was the opinion of puerperae about the use of non-pharmacological methods of labor pain relief.

**Materials and Methods:** The study was conducted in the Department of Obstetrics of the Independent Public Clinical Hospital No. 4 in Lublin and the Department of Obstetrics of the Independent Public Provincial Hospital of Jan Boży in Lublin. In the research, the Numerical Pain Rating Scale and the original questionnaire concerning socio-demographic data were used.

**Results:** Based on the survey, it was found that the majority of women were interested in non-pharmacological methods of reducing labor pain before the delivery. More than half of them used these methods during childbirth. The intensity of labor pain before the use of non-pharmacological methods was assessed in a 10-point scale in the range of 4° to 10° (average  $8.8 \pm 1.3$ ) and after the application in the range of 1° to 10° (average  $6.5 \pm 1.9$ ).

**Conclusions:** Most women are interested in non-pharmacological methods of pain relief during childbirth. The use of natural techniques reduces the intensity of labor pain.

**Keywords:** Birth; Birth pain; Puerperae

### Introduction

Labor pain is the most acute pain of a human body. It is similar to other types of visceral pain (severe, colicky, and intermittent). In contrast to many other sources of pain, is not a pathological case, but a part of a normal physiological process [1]. In the first stage of birth, it is caused by uterine contractions and dilatation of cervix to allow the exit of the fetus. In the second stage of labor, the pain is caused by the pressure of the pelvic and the distension of enclosing structures [2,3]. The labor pain is influenced not only by the physiological and anatomical factors, but also by psychological and socio-cultural implications [4].

The most important goal of labor pain is to mobilize a woman's body to cooperate during delivery. Unfortunately, the perception of labor pain as bad pain can cause a lot of problems, for example: it increases maternal catecholamine secretion which contributes to emotional stress and in consequence has a negative influence on women's mental health. Furthermore, the fear of pain evokes frequent request of cesarean section [3]. The most common approach to labor pain is to offer management to parturient in order to decrease pain [5]. The most effective method of pain relief is neuraxial analgesia, but it is associated with certain side effects. In contrast, non-pharmacological techniques emerge to be easily applicable, cheap and safe [4]. The labor pain is a dominant problem for many pregnant women and it urges them to use the pain management techniques during labor.

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**Table 1:** Socio-demographic data.

| Characteristics            | n   | %   |
|----------------------------|-----|-----|
| Marital status             |     |     |
| Single (unmarried)         | 16  | 14  |
| Married                    | 94  | 84  |
| Single (divorced or widow) | 2   | 1.8 |
| Place of residence         |     |     |
| Village                    | 41  | 37  |
| City                       | 71  | 63  |
| Education                  |     |     |
| Professional               | 16  | 14  |
| Secondary                  | 37  | 33  |
| Higher                     | 59  | 53  |
| Motherhood                 |     |     |
| This is my first child     | 69  | 62  |
| I have more children       | 43  | 38  |
| Total                      | 112 | 100 |

**Table 2:** Women's perception of labor.

| The ideas about labor   | n   | %      |
|---|-----|--------|
| Desirable, happy and expected moment                                    | 22  | 19.60  |
| Inevitable end of pregnancy   | 61  | 54.50  |
| Painful experience ended with a feeling of satisfaction, relief and joy | 4   | 3.60   |
| Traumatic event which I do not want to repeat                           | 25  | 22.30  |
| Total   | 112 | 100.00 |

**Table 3:** Women's opinion on the impact of antenatal classes on their labor.

| The impact of antenatal classes on labor*  | n   | %      |
|--|-----|--------|
| Yes, classes are very helpful during labor | 35  | 31.30  |
| No, classes do not help                    | 2   | 1.80   |
| I have no opinion                          | 37  | 33.00  |
| I did not attend antenatal classes         | 72  | 64.30  |
| Total                                      | 112 | 100.00 |

\*respondents gave more than one answer.

**Table 4:** The decision to choose non-pharmacological methods of labor pain relief.

| The choice of non-pharmacological methods of labor pain relief | n   | %      |
|--|-----|--------|
| Midwife  | 21  | 18.80  |
| I decided on my own  | 14  | 12.50  |
| I decided together with a midwife                              | 43  | 38.40  |
| I did not use pharmacological method                           | 34  | 30.30  |
| Total  | 112 | 100.00 |

Most women feel that pain should be relieved but they are afraid of the harmful effects of labor pain relief management. For that reason, non-pharmacological methods have become more popular. Nowadays, women have an access to a lot of different methods to manage labor pain. Women's decision of the techniques is influenced by a number of factors, but it seems to be important for them to have the possibility to choose [6,7].

The aim of the study was to investigate what was the opinion of puerperae about the use of non-pharmacological methods of pain

relief in labor.

## Materials and Methods

The study was conducted between the period of January 29, 2016 to April 16, 2016 in the Department of Obstetrics of the Independent Public Clinical Hospital No. 4 in Lublin and the Department of Obstetrics of the Independent Public Provincial Hospital of Jan Boży in Lublin. In the study took part 112 puerperae. It was a retrospective research, based on memories of the postpartum women. They expressed the desire to be a part of the research and gave consent to participate in it after the admission to the maternity unit.

Each respondent was informed of the purpose of the research, its anonymity and voluntary participation. In order to carry on the study, the diagnostic survey method was used. The following tools were used: the Numerical Pain Rating Scale from the Laboratory of Psychological Tests in Warsaw, as well as the original questionnaire which included a patient's information on a voluntary and anonymous participation in the research. The questionnaire consisted of 25 closed questions with a choice of one or several answers. The first part of the questionnaire contained the respondents' opinions about the non-pharmacological methods of pain relief during labor. In the second part, women were asked about their socio-demographic data. The results obtained were subjected to descriptive statistical analysis.

The study was approved by the Bioethics Committee of the Medical University of Lublin No.: KE-0254/114 in 2016. The study was consistent with the objectives of the Declaration of Helsinki.

## Results

The research group ranged between 18 to 42 years of age (average  $28.2 \pm 5.4$ ). The surveyed women had one to seven children. Further socio-demographic data on the respondents are presented in the Table 1.

The respondents were asked about their perception of labor (Table 2).

In the opinion of the majority of respondents (105; 93.8%), the preparation for labor has an influence on its course. Only 7 (6.3%) disagreed with this statement. More than half of (72; 64.3%) respondents did not attend antenatal classes. Only 40 (35.7%) women participated in them.

Women were also asked how the antenatal classes affected the process of their labor (Table 3).

The majority of respondents (79; 70.4%) were interested in the subject of labor pain before birth while (33; 25.9%) replied that they were not.

Most (77; 68.7%) women were interested in non-pharmacological methods of lessening labor pain before delivery. Only 35 (31.3%) were uninterested in the subject.

Most (83; 74.1%) of the respondents answered that during pregnancy they knew about non-pharmacological methods of labor pain relief and wanted to use them while parturition. Only 29 (25.9%) denied having such kind of knowledge. The respondents' answers showed that 74 (66.1%) of women used non-pharmacological methods of labor pain relief. The 37 (33%) women replied that they did not use the above mentioned methods.

From the research point of view, it was interesting who decided to

**Table 5:** The assessment of labor pain in a 10-point scale.

| The assessment of labor pain intensity | A    | SD   | Min-Max  | Q1   | Q2   | Q3    |
|--|------|------|----------|------|------|-------|
| before using natural methods           | 8.80 | 1.30 | 4.0-10.0 | 8.00 | 9.00 | 10.00 |
| after using natural methods            | 6.50 | 1.90 | 1.0-10.0 | 5.00 | 6.00 | 8.00  |

A: Average; SD: Standard Deviation; Min-Max: Minimum-Maximum; Q1: Quartile 1; Q2: Quartile 2; Q3: Quartile 3.

**Table 6:** Sources of women's knowledge on non-pharmacological methods of labor pain relief.

| Sources of women's knowledge on non – pharmacological methods of labor pain relief                                 | n   | %       |
|--|-----|---------|
| Midwife  | 34  | 14.00%  |
| Obstetrician   | 12  | 5.00%   |
| Other women from a group of family and friends   | 50  | 20.70%  |
| From books, magazines for pregnant women and mothers   | 47  | 19.40%  |
| Websites, blogs, the Internet forums, pages and groups in social networking sites run by midwives or obstetricians | 54  | 22.30%  |
| Antenatal classes and meetings with pregnant women conducted by doula  | 19  | 7.90%   |
| Television and / or radio  | 13  | 5.40%   |
| I did not gain knowledge, information or opinions on how to relieve the labor pain from any sources                | 13  | 5.40%   |
| Total  | 242 | 100.00% |

\*respondents gave more than one answer.

**Table 7:** The most effective non-pharmacological method of labor pain relief in the opinion of women.

| The most effective method | n   | %       |
|---------------------------|-----|---------|
| Massage                   | 50  | 32.50%  |
| TENS                      | 4   | 2.60%   |
| Acupressure               | 2   | 1.30%   |
| Aromatherapy              | 1   | 0.60%   |
| Music therapy             | 12  | 7.80%   |
| Water immersion           | 25  | 16.20%  |
| Breathing techniques      | 44  | 28.60%  |
| Hypnosis                  | 2   | 1.30%   |
| Vertical positions        | 14  | 9.10%   |
| Total                     | 154 | 100.00% |

\*respondents gave more than one answer.

use the non-pharmacological methods of labor pain relief (Table 4).

It was also examined how the respondents assessed the intensity of pain before and after the application of non-pharmacological methods of labor pain relief on the 10-point scale of the intensity of pain (Table 5).

The majority (97; 86.6%) of respondents believed that the use of non-pharmacological methods of labor pain relief reduced anxiety before next delivery. Only 15 (13.4%) disagreed with the statement.

Women were also asked about the source of knowledge on non-pharmacological methods of labor pain relief (Table 6).

The respondents were also asked to identify the most effective non-pharmacological methods of labor pain relief (Table 7).

## Discussion

Labor is one of the most important events of woman's life, but often is accompanied by fear of physical pain [8,9]. Our study leads that for 22.3% investigated newly delivered mothers, labor had been a traumatic event, they do not want to repeat. It needs to be highlighted that for more than half of puerperae it was the first experience with motherhood. It is believed that awe of childbirth is higher in primiparous than in multiparous women [10]. First time mothers

experience fear of unknown and internalizing other women's stories. For multiparous women a negative experience of last labor influences expectation for their upcoming birth [11]. That is why; pain in childbirth is a complex phenomenon that usually needs different approaches [12]. Moreover it seems to be crucial to understand how women prepare themselves for the process of childbirth and what would be their perception of birth pain.

Nowadays there has been a notable rise in the use of pharmacological birth pain relief. Medical management during natural birth declines the benefits for parturients and their child. As a result, unconventional methods of pain relief are increasingly being appreciated [13]. The reports of the World Health Organization show that natural techniques are mostly used for preventive and protective purposes [14]. The tendency toward using non-pharmacological methods during labor is becoming so popular that some countries consider including the training about the application of these methods in the educational courses of midwifery students [15].

Our study shows that there is a great interest in the mechanism of labor pain and the natural techniques of its alleviating. The majority of respondents (70.4%) were interested in labor pain and most (68.7%) of them were interested in natural methods of its lessening. However, the majority information about it they found through websites, blogs, the Internet forums, pages and groups in social networking sites run by midwives or obstetricians, but not from direct meeting with medical staff. Merely 40 (35.7%) women participated in antenatal classes. In the opinion of the majority of women (93.8%), the preparation for birth has an influence on its course. However, only every third woman (31.3%) admitted that participation in prenatal classes had a positive effect on their labor. This situation is probably caused by the lack of sufficient motivation for participation in antenatal classes. Moreover it could be a result of absence of comprehensive information about childbirth during these activities. Self-control during labor seems to be fundamental for a woman's well-being. Also, more realistic expectations about labor are associated with greater satisfaction. Participation in antenatal education activities can help them to gain more knowledge and consequently, have more realistic expectations. A several studies show that antenatal preparation for childbirth is essential for women's positive attitude to labor and more frequent use of non-pharmacological techniques for pain relief [9]. Furthermore,

in the case of natural methods, a woman takes the decision herself [8]. For that reason, it seems to be important to know the opinions of women on natural methods of labor pain relief.

There are a lot of different types of non-pharmacological methods of labor pain relief i.e.: water immersion [16], hypnosis [17], reflexology [8], aromatherapy [15], massage [18], breathing techniques [18], vertical positions [19], music therapy [20], TENS [21]. It seems promising that according to our studies, 66.1% of women used natural methods of pain relief during their labor. The decision about the non-pharmacological method of labor pain relief, most of the parturient (38.4%) made together with a midwife. This profession seems to be sufficiently prepared to support women during labor and encourage them to use natural methods [5]. Other study shows that over 70% of women used some nonmedical pain management techniques during labor. The most common methods are: breathing techniques and positions changes [18]. Our study shows that the most common techniques are massage, breathing methods and water immersion. The majority of respondents (86.6%) believe that the use of non-pharmacological methods of labor pain relief reduces anxiety before next delivery.

In our study women assessed the intensity of labor pain in a 10-point scale before the use of non-pharmacological methods in the range of 4° to 10°. Based on memories of the postpartum women, after the application of some of the techniques the degree ranged between from 1 to 10. The assessment of labor pain is particularly problematic because the numeric scale does not differentiate the type of pain which changes throughout the duration of labor (from visceral cramping pain to continuous somatic pain) [22]. Therefore, these results are only partial. However, the non-pharmacological methods could be effective for some women. It seems that it is very important to choose the method individually. Thus, it is crucial for pregnant women to know all the available techniques before labor. The major problem is that for most women it is difficult to imagine during pregnancy what labor pain would be like. Even women who experienced childbirth before found it difficult to remember and describe the pain [1].

Our study involved a relatively small research group, yet, the results encourage further investigation. The study indicates the need to develop and implement programs of antenatal education, which will include comprehensive information about the available non-pharmacological methods of labor pain relief and its effectiveness.

## Conclusions

Non-pharmacological methods of labor pain relief are an important part of antenatal education. Most women are interested in natural techniques before labor.

More than half of women use natural methods of pain relief during labor. In their opinion the most effective are massage, breathing techniques and water immersion.

The intensity of labor pain is reduced by the use of natural techniques.

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